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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/151,764	09/11/1998	JAY H. DOWLING	A-6388	8313

7590 03/12/2002

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EXAMINER
FUREMAN, JARED

ART UNIT	PAPER NUMBER
2876	

DATE MAILED: 03/12/2002

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No. 09/151,764	Applicant(s) Dowling et al.
	Examiner Jared Fureman	Art Unit 2876

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136 (a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1) ☒ Responsive to communication(s) filed on *Dec 18, 2001*.

2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.

3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11; 453 O.G. 213.

Disposition of Claims

4) ☒ Claim(s) *1-25, 27-45, and 47-55* is/are pending in the application.

4a) Of the above, claim(s) *1-24, 28-35, and 37-39* is/are withdrawn from consideration.

5) ☐ Claim(s) _____ is/are allowed.

6) ☒ Claim(s) *25, 27, 36, 40-45, and 47-55* is/are rejected.

7) ☐ Claim(s) _____ is/are objected to.

8) ☐ Claims _____ are subject to restriction and/or election requirement.

Application Papers

9) ☐ The specification is objected to by the Examiner.

10) ☐ The drawing(s) filed on _____ is/are objected to by the Examiner.

11) ☐ The proposed drawing correction filed on _____ is: a) ☐ approved b) ☐ disapproved.

12) ☐ The oath or declaration is objected to by the Examiner.

Priority under 35 U.S.C. § 119

13) ☐ Acknowledgement is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d).

a) ☐ All b) ☐ Some* c) ☐ None of:

1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

*See the attached detailed Office action for a list of the certified copies not received.

14) ☐ Acknowledgement is made of a claim for domestic priority under 35 U.S.C. § 119(e).

Attachment(s)

15) ☐ Notice of References Cited (PTO-892)
16) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
17) ☐ Information Disclosure Statement(s) (PTO-1449) Paper No(s). _____
18) ☐ Interview Summary (PTO-413) Paper No(s). _____
19) ☐ Notice of Informal Patent Application (PTO-152)
20) ☐ Other:

DETAILED ACTION

1. Receipt is acknowledged of the amendment filed on 12/18/2001, which has been entered in the file, claims 1-25, 27-45, 47-55 are pending, with claims 1-24, 28-35, and 37-39 being drawn to a non-elected invention.

Claim Objections

2. Claims 44 and 52 are objected to because of the following informalities:

Claim 44, line 8: "said CCD" lacks proper antecedent basis, "CCD" should be replaced with --charge coupled device (CCD)--, in order to clarify the claim.

Claim 52, line 2: "position" should be replaced with --positions--.

It is noted that the above changes are shown in the marked up version of the claims, as submitted with the amendment filed on 12/18/2001, however, the changes have not been made in the clean version of the claims.

Appropriate correction is required.

Claim Rejections - 35 USC § 103

3. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a

person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

4. Claims 25, 40-43, 49, 50, and 51 are rejected under 35 U.S.C. 103(a) as being unpatentable over Peng (US 5,365,049, previously cited) in view of Parulski et al (US 5,563,658, previously cited).

Re claims 25, 41-43, 49, and 50: Peng teaches an optical symbology imager, comprising: a multiple line charge coupled device (CCD) (18) having an active area, a focusing apparatus comprising a focusing disk (wheel 4) with multiple optical positions (reflective surfaces 7) to provide different focal lengths, the disk being rotatable so that each of the multiple optical positions can move into an optical path of the imager, a microprocessor (not shown) for controlling the focusing apparatus and operation of the CCD, so that the CCD performs image capture producing image data for each of the multiple optical positions, the microprocessor controlling the CCD to shift out the image data, the microprocessor evaluating transitions between light and dark data in a central set of multiple scan lines (Peng evaluates all of the scan lines of the CCD, thereby including the central set of scan lines) to produce a representative value for each of the multiple optical positions, the multiple optical positions being at least two, and the multiple optical positions being eight (surfaces 7a-7h) (see figure 6, column 1 lines 6-46, column 2 lines 3-26, column 2 line 61 - column 3 line 12, column 4 lines 4-16, and column 7 line 47 - column 8 line 13).

Peng fails to specifically teach shifting out the image data substantially serially, the largest representative value corresponding to one of the optical positions producing optimum focus, and the CCD having a resolution of 659 by 494.

However, it was well known to those of ordinary skill in the art at the time of the invention to shift out image data from a CCD substantially serially, that when an image is in a focused position it will provide the highest contrast between different portions of the image, furthermore, CCD's having a resolution of 659 by 494 were well known to those of ordinary skill in the art at the time of the invention (as applicant's acknowledge on page 3, lines 1-11, and page 11, lines 28-32 of the specification).

Therefore, it would have been obvious to one of ordinary skill in the art at the time of the invention to integrate, with the system as taught by Peng, shifting out the image data substantially serially, the CCD having a resolution of 659 by 494, in order to provide a CCD suitable for reading the intended images that has an output that is widely accepted, and the largest representative value corresponding to one of the optical positions producing optimum focus, in order to accurately determine the best focus position.

Peng fails to teach the CCD disposing of a first set of multiple scan lines at a first rate of speed during focusing and then sampling a second subsequent set of multiple lines from the central set of scan lines at a second rate of speed less than the first rate of speed during focusing, the second set of multiple lines being substantially ten lines, the microprocessor only utilizing the central set of multiple lines to produce the optimum focus.

Parulski et al teaches disposing of a first set (68) of multiple scan lines of a CCD (20) at a first rate of speed ("fast flush" mode focus mode) during focusing and then sampling a second subsequent set (center region 66) of multiple lines from the central set (the center section of the imager) of scan lines at a second rate of speed less than the first rate of speed during focusing, the second set of multiple lines being substantially ten lines (for example 4, 8, or 16 lines), the microprocessor (processor section 35) only utilizing the central set of multiple lines to produce the optimum focus, in order to reduce the amount of time needed for focusing (see column figures 1, 3, column 2 line 60 - column 3 line 3, column 4 line 29 - column 5 line 14, and column 6 lines 60-64).

In view of Parulski et al's teachings, it would have been obvious to one of ordinary skill in the art at the time of the invention to integrate, with the system as taught by Peng, the CCD disposing of a first set of multiple scan lines at a first rate of speed during focusing and then sampling a second subsequent set of multiple lines from the central set of scan lines at a second rate of speed less than the first rate of speed during focusing, the second set of multiple lines being substantially ten lines, the microprocessor only utilizing the central set of multiple lines to produce the optimum focus, in order to reduce the amount of time needed for focusing, thereby providing a faster system.

Re claim 40: Peng as modified by Parulski et al fails to specifically teach that the first set of multiple lines is 246 lines.

However, Parulski et al does teach that the number of lines in the first set of multiple lines is variable and depends upon the conditions under which the system is intended to be used (see column 6 lines 60-64), thus, the number of lines in the second set of multiple lines is also variable (this is true since if the number of lines disposed of must be decreased).

Therefore, it would have been obvious to one of ordinary skill in the art at the time of the invention to integrate, with the system as taught by Peng as modified by Parulski et al, the first set of multiple lines being 246 lines, in order to adapt the system to the conditions under which the system is intended to be used. Furthermore, it is an obvious variation, well within the ordinary skill in the art at the time of the invention, that fails to provide any unexpected results.

Re claim 51: Peng as modified by and Parulski et al fails to specifically teach the multiple optical positions being twelve.

However, Peng teaches that the number of multiple optical positions is variable (see column 6 lines 1-4) and that the number of focusing lengths depends on the number of multiple optical positions (reflective surfaces, see column 3 lines 9-12).

Therefore, it would have been obvious to one of ordinary skill in the art at the time of the invention to integrate, with the system as taught by Peng as modified by and Parulski et al, the multiple optical positions being twelve, in order to increase the number of focusing lengths, thereby increasing the range of distances over which proper focus may be achieved.

Furthermore, it is an obvious variation, well within the ordinary skill in the art at the time of the invention, that fails to provide any unexpected results.

5. Claim 36 is rejected under 35 U.S.C. 103(a) as being unpatentable over Peng as modified by and Parulski et al as applied to claim 25 above, and further in view of the admitted prior art.

Peng as modified by and Parulski et al is silent as to whether the optical symbology imager is stationary or hand-held, and thus, fails to specifically teach that the optical symbology imager is hand-held.

The admitted prior art teaches that scanners may be either installed in a fixed location or portable hand-held units (see page 2, lines 10-30).

In view of the admitted prior art, it would have been obvious to one of ordinary skill in the art at the time of the invention to integrate, with the system as taught by Peng as modified by and Parulski et al, the optical symbology imager being hand-held, in order to provide a more convenient and versatile optical symbology imager (for example: a hand-held optical symbology imager would be more convenient when it is necessary to scan large or heavy items which would be difficult to move past a fixed scanner at a point of sale terminal).

6. Claim 27 is rejected under 35 U.S.C. 103(a) as being unpatentable over Peng as modified by and Parulski et al as applied to claim 25 above, and further in view of England (US 5,510,604, previously cited).

Peng as modified by and Parulski et al fails to teach the representative value being produced by totaling a first seven to ten values from multiple values produced for each of the multiple focusing zones.

England teaches producing a representative value (of a bar code) by totaling (each scan may be averaged from several sub-scans, producing an average includes totaling the values) a plurality (thus, suggesting at least 7-10) of values from multiple values produced by an imager, in order to ensure valid results (see the abstract, and column 5 line 35 - column 6 line 3).

In view of England's teachings, it would have been obvious to one of ordinary skill in the art at the time of the invention to integrate, with the system as taught by Peng as modified by and Parulski et al, the representative value being produced by totaling a first seven to ten values from multiple values produced for each of the multiple focusing zones, in order to ensure valid results.

7. Claims 44, 47, and 52-54 are rejected under 35 U.S.C. 103(a) as being unpatentable over Broockman et al (US 4,800,256, previously cited) in view of Rando et al (US 4,939,356, previously cited) and the admitted prior art.

Broockman et al teaches an optical symbology reader comprising: a light transmissive focusing apparatus comprising a focusing disk (holographic disk 10) with multiple optical positions (facets 16A, 16B, etc.) to provide different focal lengths, the disk being rotatable so that each of the multiple optical positions can move into an optical path (30) of the reader, a microprocessor (processor 40) for controlling the focusing apparatus, a photodetector (34)

producing data for each of the multiple optical positions, the microprocessor evaluating transitions between light and dark data to produce a representative value for each of the multiple optical positions, the multiple optical positions being at least two, the multiple optical positions being thirteen (thus including eight and twelve), (see figure 1 and column 3 line 50 - column 4 line 33).

Broockman et al fails to teach the use of a non-holographic light transmissive focusing apparatus.

Rando et al teaches an optical symbology reader comprising: a light transmissive focusing apparatus comprising a focusing disk (wheel 79) with multiple optical positions (lenses 38) to provide different focal lengths, the disk being rotatable so that each of the multiple optical positions can move into an optical path of the reader (see figures 5, 6, 8, column 6 lines 7-44 and column 7 line 60 - column 8 line 2).

In view of Rando et al's teachings, it would have been obvious to one of ordinary skill in the art at the time of the invention to modify the system, as taught by Broockman et al, to include a non-holographic light transmissive focusing apparatus, in order to provide a focusing apparatus which magnifies the image and length of the scan beam, thereby providing a scan pattern of useful size from a compact scanning mechanism (see column 6 lines 36-44).

Broockman et al as modified by Rando et al fails to teach an optical symbology imager, the microprocessor controlling operation of a charge coupled device (CCD) so that the CCD performs image capture producing image data for each of the multiple optical positions, the

microprocessor evaluating transitions between light and dark data in a central set of multiple scan lines to produce a representative value for each of the multiple optical positions, the multiple line CCD having a resolution of 659 by 494.

The admitted prior art teaches that two-dimensional arrays such as CCD arrays have may be used instead of the traditional laser and single photodiode, a CCD having dimensions of 640 by 480 pixels provides sufficient resolution for use with VGA monitors and is widely accepted, that the use of a two dimensional sensor allows use with spatially oriented two dimensional codes, and that CCD's having a resolution of 659 by 494 (which provide the common 640 by 480 resolution) were commercially available at the time of the invention (see the description of the prior art, page 3, lines 1-11, page 11 line 28 - column 12 line 2). The CCD is necessarily controlled by processor hardware which evaluates transitions between light and dark data in a central set of multiple scan lines (the processor hardware typically evaluates light and dark data in every scan line of the CCD, thereby including a central set of multiple scan lines) to produce a representative value.

In view of the admitted prior art, it would have been obvious to one of ordinary skill in the art at the time of the invention to modify the system, as taught by Broockman et al as modified by Rando et al, to include: an optical symbology imager, the microprocessor controlling operation of a charge coupled device (CCD) so that the CCD performs image capture producing image data for each of the multiple optical positions, the microprocessor evaluating transitions between light and dark data in a central set of multiple scan lines to

produce a representative value for each of the multiple optical positions, the multiple line CCD having a resolution of 659 by 494, rather than the conventional laser and single photodetector, in order to allow use of the system with two dimensional spatially oriented codes, which contain greater information density than a linear bar code (see the description of the prior art, page 2, lines 1-6).

Broockman et al as modified by Rando et al as modified by the admitted prior art fails to specifically teach shifting out the image data substantially serially, and the largest representative value corresponding to one of the optical positions producing optimum focus.

However, it was well known to those of ordinary skill in the art at the time of the invention to shift out image data from a CCD substantially serially, and that when an image is in a focused position it will provide the highest contrast between different portions of the image.

Therefore, it would have been obvious to one of ordinary skill in the art at the time of the invention to integrate, with the system as taught by Broockman et al as modified by Rando et al and the admitted prior art, shifting out the image data substantially serially, and the largest representative value corresponding to one of the optical positions producing optimum focus, in order to accurately determine the best focus position.

8. Claim 45 is rejected under 35 U.S.C. 103(a) as being unpatentable over Broockman as modified by Rando et al and the admitted prior art as applied to claim 44 above, and further in view of England.

Broockman as modified by Rando et al and the admitted prior art fails to teach the representative value being produced by totaling a first seven to ten values from multiple values produced for each of the multiple focusing zones.

The teachings of England have been discussed above.

In view of England's teachings, it would have been obvious to one of ordinary skill in the art at the time of the invention to integrate, with the system as taught by Broockman as modified by Rando et al and the admitted prior art, the representative value being produced by totaling a first seven to ten values from multiple values produced for each of the multiple focusing zones, in order to ensure valid results.

9. Claims 48 and 55 are rejected under 35 U.S.C. 103(a) as being unpatentable over Broockman as modified by Rando et al and the admitted prior art as applied to claim 44 above, and further in view of Parulski et al.

Broockman as modified by Rando et al and the admitted prior art fails to teach the microprocessor only utilizing the central set of multiple lines to produce the optimum focus, the CCD disposing of a first set of multiple scan lines at a first rate of speed during focusing and then sampling a second subsequent set of multiple lines from the central set of scan lines at a second rate of speed less than the first rate of speed during focusing.

The teachings of Parulski et al have been discussed above.

In view of Parulski et al's teachings, it would have been obvious to one of ordinary skill in the art at the time of the invention to integrate, with the system as taught by

Broockman as modified by Rando et al and the admitted prior art, the microprocessor only utilizing the central set of multiple lines to produce the optimum focus, the CCD disposing of a first set of multiple scan lines at a first rate of speed during focusing and then sampling a second subsequent set of multiple lines from the central set of scan lines at a second rate of speed less than the first rate of speed during focusing, in order to reduce the amount of time needed for focusing, thereby providing a faster system.

Response to Arguments

10. Applicant's arguments filed 5/8/2001 have been fully considered but they are not persuasive.

In response to applicant's argument that Parulski et al does not teach the CCD disposing of a first set of multiple scan lines at a first rate of speed during focusing and then sampling a second subsequent set of multiple lines from the central set of scan lines at a second rate of speed less than the first rate of speed during focusing (see pages 3 and 4 of the amendment filed on 12/18/2001). Parulski et al teaches that during "fast flush" focusing mode, a top portion of the image is rapidly read out and discarded, then a small number of lines in the center region 66 of the image are clocked out using the normal redout operation, then the remainder of the image charge is cleared out (see figures 3, 6, column 4 line 65 - column 5 line 13, column 5 line 58 - column 6 line 11). Since the "fast flush" mode produces an unusable signal, if the entire image was read out using the "fast flush" mode, there would

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be no usable signal to determine focus. Clearly, as taught by Parulski et al, the center region 66 is read out at a slower rate than the remainder of the image.

11. Applicant's arguments with respect to claims 44, 47, and 52-55 have been considered but are moot in view of the new ground(s) of rejection.

As described in the action above, Rando et al teaches the use of a non-holographic light transmissive focusing apparatus.

Conclusion

12. Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the date of this final action.

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13. Any inquiry concerning this communication or earlier communications from the examiner should be directed to ***Jared Fureman*** whose telephone number is (703) 305-0424. The examiner can normally be reached between the hours of 7:00AM to 4:30PM Monday thru Thursday and every other Friday (second Friday of the bi-week).

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Mr. Michael G. Lee, can be reached on (703) 305-3503. The fax phone numbers for the organization where this application or proceeding is assigned are (703) 308-7722, (703) 308-7724, or (703) 308-7382.

Communications via Internet e-mail regarding this application, other than those under 35 U.S.C. 132 or which otherwise require a signature, may be used by the applicant and should be addressed to **[jared.fureman@uspto.gov]**.

All Internet e-mail communications will be made of record in the application file. PTO employees do not engage in Internet communications where there exists a possibility that sensitive information could be identified or exchanged unless the record includes a properly signed express waiver of the confidentiality requirements of 35 U.S.C. 122. This is more clearly set forth in the Interim Internet Usage Policy published in the Official Gazette of the Patent and Trademark on February 25, 1997 at 1195 OG 89.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the Group receptionist whose telephone number is (703) 308-0956.

jjf

March 11, 2002

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